

AIS

Aquatic Invasive Species

NEW ZEALAND MUDSNAIL



Photo by: D.L. Gustafson
www2.montana.edu/nzms/index.htm

COMMON NAME: New Zealand mudsnail

Sometimes this snail may be referred to as pond snail or just mudsnail. It is called the New Zealand mudsnail because it originates from New Zealand.

SCIENTIFIC NAME: *Potamopyrgus antipodarum*

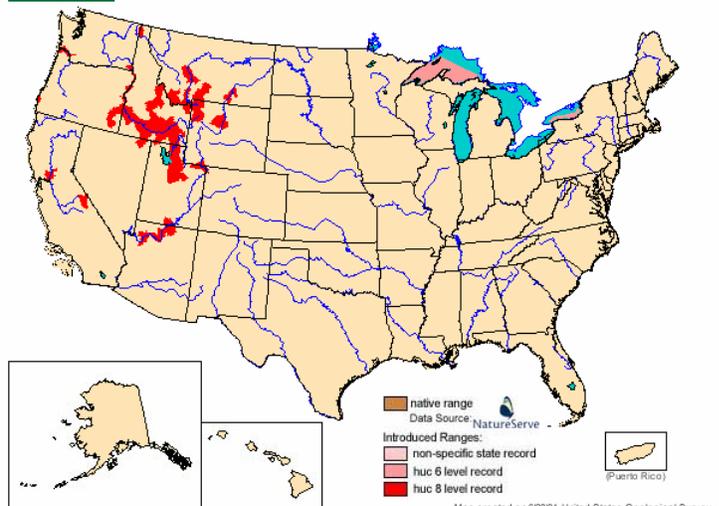
J.E. Gray named the New Zealand mudsnail in 1853. It is in the family Hydrobiidae, the spire snails. This family is characterized by their spiral shaped shells.

DISTRIBUTION: The New Zealand mudsnail's native range includes the lakes and streams of New Zealand and its adjacent small islands. It is now established in Australia, Europe, the Western United States, and in Lake Ontario and Lake Superior.

Indiana: The New Zealand mudsnail has not yet been detected in Indiana waters, but it is on Indiana's Aquatic Nuisance Species watch list.



Potamopyrgus antipodarum



DESCRIPTION: The New Zealand mudsnail is small, usually about 5mm. The shells show a right-handed coiling pattern with about 5-7 whorls. The shells can be colored anywhere from dark gray, dark brown to light brown. Identification of this very small snail is difficult. Snails of this size have very little distinguishing characteristics and it is easy to confuse them. In the United States there are even native snails that have yet to be described.

LIFE CYCLE BIOLOGY AND LIFE HISTORY: One major important fact about the New Zealand mudsnail is that it is able to reproduce sexually as well as through parthenogenesis. Parthenogenesis is reproduction without fertilization. Female New Zealand mudsnail gametes can develop into a new individual without fertilization from a male gamete. One female can produce 20-120 embryos. They will most often reproduce in summer and autumn. When a New Zealand mudsnail reaches 3mm it has reached sexual maturity. They have been known to live over a year. They can tolerate a wide range of habitats like rivers, lakes, estuaries and reservoirs. They will proliferate well in water with a constant temperature and a constant flow. The New Zealand mudsnail grazes on detritus, diatoms and plant and animal matter that are attached to submerged debris. There seems to be little to no predation pressure on them. Fish and waterfowl rarely feed on them and it is unknown if they provide any nutritional value at all.

PATHWAYS/HISTORY: The New Zealand mudsnail first appeared in the United States in the Snake River, Idaho, in 1987. Shortly afterwards the mudsnail invade the Madison River in Montana. By 1994 New Zealand mudsnails moved south in the Madison River to Yellowstone National Park. In 1997 the Columbia River in Oregon reported the discovery of the species. The New Zealand mudsnail showed up in the Owens River in California in 2001, and in 2002 they invaded the Colorado River in Arizona and the Green River in Utah. The New Zealand mudsnail has stayed mostly in the Western United States, but in recent years we have seen populations pop up in the Great Lakes. In 2001 Canada reported infestations in Thunder Bay, Ontario which opens up into Lake Superior. In 2003 the New Zealand mudsnail was found in various areas of the U.S. waters of Lake Superior. They have also been collected from different parts of Lake Ontario. Now present in the Great Lakes, the New Zealand mudsnail has access into the waterways of the Eastern United States.

DISPERSAL/SPREAD: It seems that the New Zealand mudsnail first found its way into United States waters as a contaminant in New Zealand trout stocking shipments. It also could have easily been transported through the ballast water of transoceanic ships. The New Zealand mudsnail is able to spread so quickly because of its ability to cling to anything from floating leaves to wading anglers. Birds, fish and cattle have been known to be vectors for dispersal of the New Zealand mudsnail. It only takes one snail introduced into a new body of water to generate a whole population because they can reproduce by the process of parthenogenesis, non-fertilized reproduction.

RISKS/IMPACTS: It is difficult to estimate what the long-term effects of any invasive species will be. But what we do know is that if populations of New Zealand mudsnails become large enough they could compete with native species for food and habitat. They

could crowd out native species like mayflies and caddis flies that are the food base for many species. In the west scientists are worried that this could lead to a reduction in their trout populations as well as other fish. There is also concern that the New Zealand mudsnail could replace our native snails by out competing them. The process of parthenogenesis allows this snail to easily proliferate and can quickly dominate an area. There have been reports of densities of one-half million per square meter. Not many species will feed on the New Zealand mudsnail. If swallowed the snail is able to “close-up” which can prevent the animal from digesting it. This ability to “close-up” also allows the snail to live out of water for a short period of time, which enables it to be transported over land alive.

MANAGEMENT/PREVENTION: Once established the New Zealand mudsnail cannot be eradicated. In its native range populations are controlled by a parasitic trematode. There is no such biological control here in the United States. Some have suggested introducing the trematode into infested waters. There is still not enough known about the effects of the trematode on native snail species to be confident enough to introduce it. Warm water will kill the mudsnail if it is above 113° F.

The best type of management that is left is public awareness to stop the range expansion of the New Zealand mudsnail. Since one major method of New Zealand mudsnail spread is contaminated recreational equipment, recreationists should be educated on the role they play in New Zealand mudsnail transport. Here are some things you can do to prevent spreading this aquatic pest.

- ✓ Learn to identify the New Zealand mudsnail and other exotic snails.
- ✓ Remove mud, plants, fish, and animals from all of your equipment and drain all water from the bilge and livewells before leaving the launch area.
- ✓ Clean your equipment including wading gear with hot water or a pressure washer and allow it to dry for five days before moving to a new body of water.
- ✓ Never release plants or animals into a different body of water from which they came.
- ✓ If you have snails or other animals in an aquarium and you no longer wish to care for them, you should euthanize the animals before disposing in the trash. **DO NOT RELEASE THEM IN THE WILD!**

JUST SAY NO



Drawing by: Lisa Cutter

TO MUDSNAILS

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